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(56) Documents Cited
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US 4915260 A US 3698021 A

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(54) Abstract Title
A bleach dispenser for a toilet flush

(57) A dispenser for a toilet flush comprises a refillable container 1, a funnel 6 at the bottom through which fluid such as bleach exits the container 1, a flask element 10 which also acts as a stopper for the funnel and a float 12 which is attached to the flask element 10, and moves up and down according to the water level in a tank such as a cistern. A conical rubber portion 11 acts to seal the funnel opening 7 when the float 12 and flask 10 are in the raised position. At least three guiding strips 8 are attached to the container 1 and extend downward towards a removable plate 14. This arrangement acts as a guide to the flask 10 and float 12, which is constrained to move within it. Hooks 15 are attached to the refillable container 1 and may be adjusted at brackets 15 to adjust the height at which the container 1 rests within the cistern.

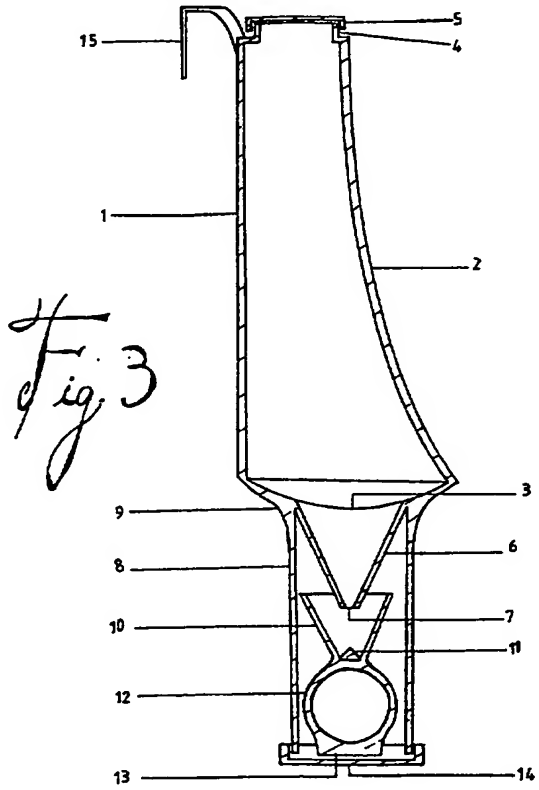

Fig. 3

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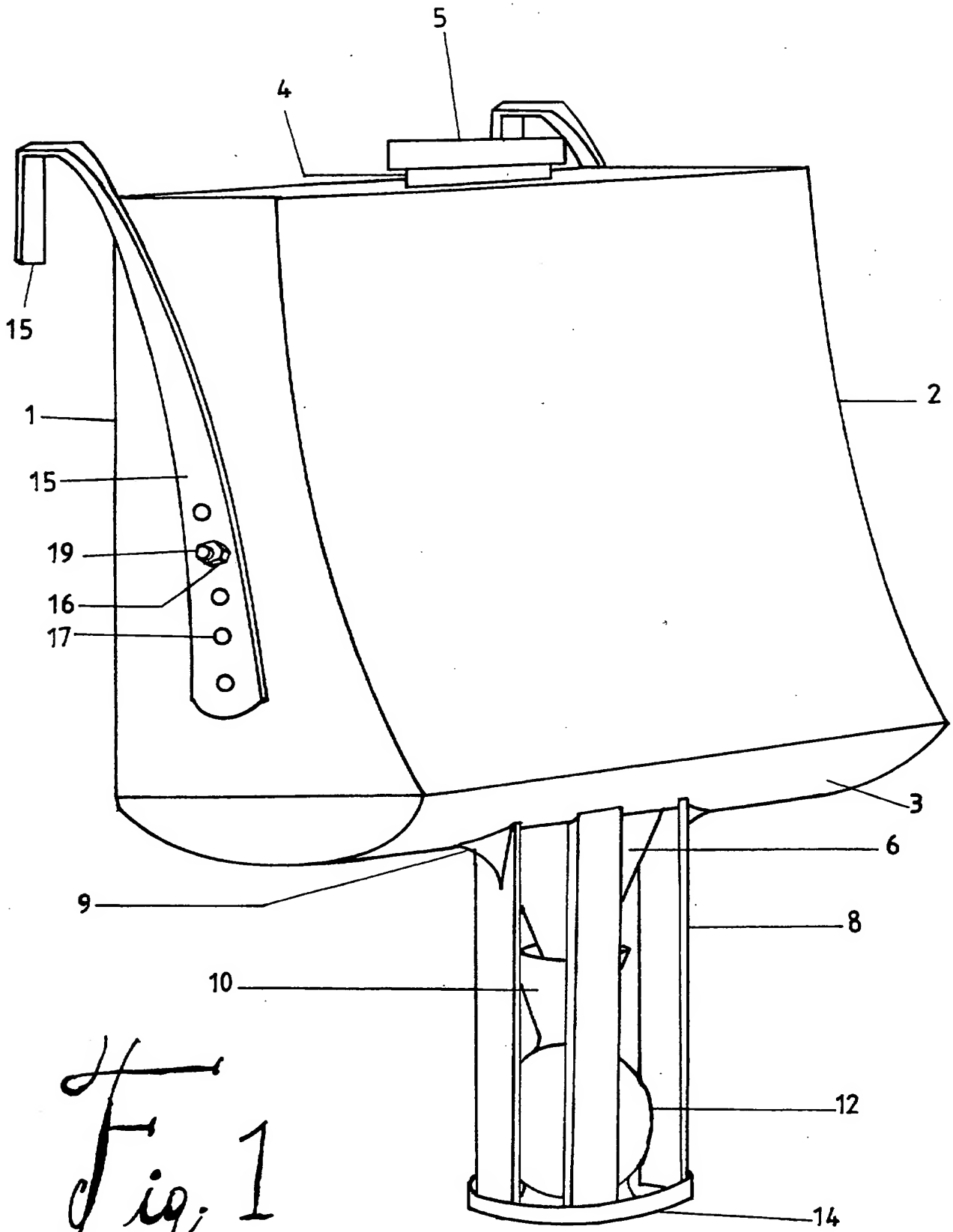

Fig. 1

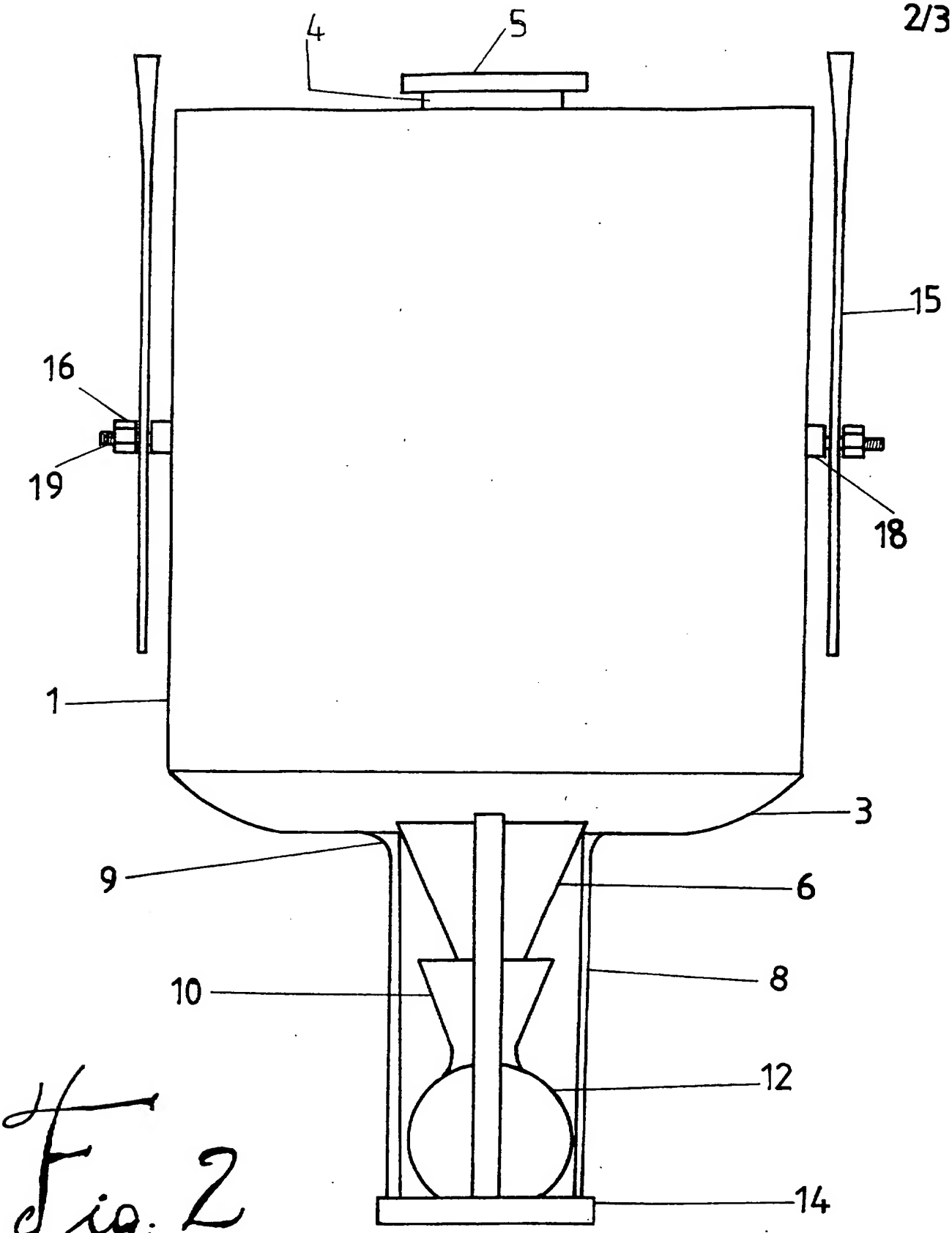

Fig. 2

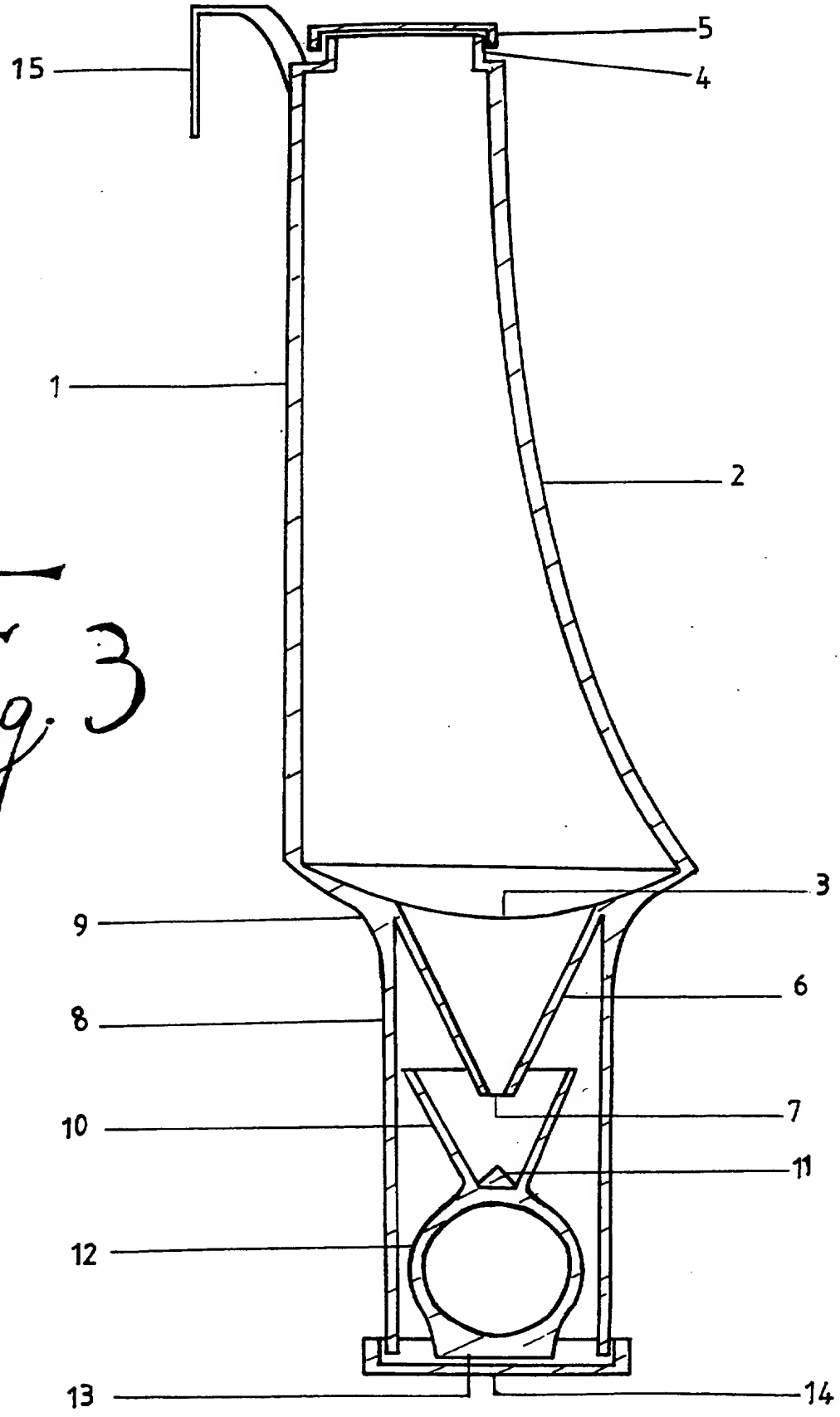

Fig. 3

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AUTOMATIC BLEACH DISPENSER FOR TOILET FLUSH

This invention relates to an automatic bleach dispenser for toilet flush.

Every toilet bowl, being domestic or otherwise and it is preferable to mention at this stage that most importantly public toilets, need regular disinfecting. The usual way to do this is of course by the unavoidable mechanical procedure using a hand brush in conjunction with a chosen household chemical, such as a toilet cleaner or more likely than diluted bleach concentrated bleach.

Whichever household chemical applied in the process of cleaning is obviously flushed away as soon as the toiled is used again; this fact leaves all future users unprotected from possible infection. Another drawback in the direct pouring of concentrated household products into the toilet, is the fact that it is done unmeasured by human beings and every human being have their own notion of the necessary amount to pour. Usually, the amount poured at anyone time is much more than necessary; therefore, this method is not only economically disadvantageous but also environmentally unfriendly.

The present invention, the automatic bleach dispenser, solves all the problems mentioned above; the following is an example showing its usefulness:-

Suppose one litre of concentrated bleach is diluted into nine litres of water to produce a ten fold dilution and the flask-stopper 10 dispenses ten millilitres each time the toilet flush is operated, this would mean that the one litre concentrated bleach would last one thousand flushes. Would one litre of concentrated bleach last twenty uses if it was poured directly by hand into a toilet bowl? Very unlikely.

The invention described for which this report has been written can be made totally out of non-porous hard plastic. The bleach dispenser comprises a container with a volume capacity of about one litre, closed at the top by a pierced screwing lid 5 that fits on an elevated opening 4 for refill purposes. The base of the container extends in the middle into a conical shape "the funnel". Surrounding the funnel, attached to the base of the container, are at least three strips, about 1.5cm in width, that extend beyond the opening of the funnel, parallel to one another and of the length of about three times the depth of the funnel. At the loose end, the plastic strips are held in a fixed position by a removable plastic base in the form of a plate. Enclosed between the plate, the funnel and the strips, is a flat based airtight ball on the top of which is attached a flask that can fit tightly around the funnel. At the bottom of the flask there is a fixed conical shaped soft rubber. Attached to the smaller sides of the container there are two adjustable hooks.

A specific embodiment of the invention will now be described by way of example with reference to the accompanying drawings in which:-

Figure 1 shows in perspective, all the parts of the bleach dispenser put together;

Figure 2 shows the front view of the bleach dispenser put together;

Figure 3 illustrates a longitudinal cut through the centre of the bleach dispenser; this cross section is parallel to the smaller sides holding the hooks;

Referring to the drawings, the bleach dispenser is composed of 3 main sections, the dispensing section, which is found under the container, and the hooks. The front 2 of the container 1 of the bleach dispenser is concave, in such a way to makes the container narrower at the top to minimise interference and larger at the bottom to increase its volume. The container 1 is held by two adjustable hooks 15, one on each smaller side, tightened by a screw 16. The Base 3 of the container is furrow shaped; this fact is not so important. At the very centre, the base 3 extends down into a conical shape 6 with an opening at the tip 7 as shown in Fig 2 to form a funnel. Surrounding the funnel 6, four strips 8 are attached to the base of the container 3; they extend downwards beyond the opening 7 and their depth is about three times that of 6. At the point of contact with the base 3 of the container, the strips enlarge 9 to strengthen the connection. Whereas at the other end, the strips are held in a fixed position by a round screwing plate 14. In between the strips 8, the plate 14 and the funnel 6 is enclosed a conical flask 10 permanently attached to an airtight ball 12 with a flat base 13; the flask fits tightly around the funnel 6. The combined flask and ball, 10 and 12 respectively, should be able to move freely, but only in a vertical direction within the enclosed space. The bottom of the flask 10 contains a soft conical rubber 11 that serves as a stopper to the opening 7; it fits into the opening to stop the fluid from pouring out of the container 1 into the flask 6 when the ball 12 is pushed upwards by water filling up the flush.

The bleach dispenser has two hooks 15, one on each smaller side of the container and are kept at a distance from the container by a filled round extension 4 of the container to which the male-screw 19 is permanently fixed, as shown in Figures 1 and 2. The female-screws 16 fit onto the male-screws 19 to fasten the hooks with the container at the holes 17. The hooks hang onto the top edge of the toilet flush to hold the bleach dispenser suspended on the inside of the flush in vertical position and immersed in water, which should reach at least the bottom of its container when the flush is filled up.

CLAIMS

1 A bleach dispenser for toilet flush comprising a refillable container, of which a section of the base extends to form a funnel. A conical stopper for the opening of the funnel, about two third the size of the funnel, also acts as the measuring flask of the bleach dispenser. The stopper possesses a small soft conical rubber at its base to fit into the opening of the funnel. Since the flask-stopper operates with the changes in water levels inside the toilet flush, an airtight ball is permanently attached to it.

2 A measuring flask-stopper and attached airtight ball as claimed in claim for which at least three guiding strips are provided, and are attached to the base of the container around the funnel

3 A combination of measuring flask-stopper and airtight ball as claimed in claim 1 or claim 2 is restrained within the strips by means of a removable plate, which fits to the end of the strips. The plate also acts as the supporting base for the combined flask-stopper and airtight ball when the water level is low in the flush.

4 A bleach dispenser as claimed in all the previous claims, wherein the adjustable hooks are provided for the adjustment of the depth of the dispenser within the toilet flush.

5 A bleach dispenser substantially as described herein with reference to Figures 1-3 of the accompanying drawing.

AMENDMENTS TO THE CLAIMS HAVE BEEN FILED AS FOLLOWS

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CLAIMS

1 A bleach dispenser for toilet flush cistern comprising a refillable container of which a section of the base extends to form a V-shaped funnel which is received within a conical measuring flask in the raised position, thus displacing the fluid which filled the measuring flask when it was in the lowered position; in the fully raised position, the measuring flask also acts as the stopper for the container; it possesses a small soft conical rubber at its base to fit into the opening of the funnel to stop the fluid from pouring out of the container; the measuring flask operates with the changes in water levels inside the toilet flush cistern, wherein controlled by a floater, an airtight ball, which is permanently attached to its base; the combined measuring flask and floater are constrained to move within surrounding guiding strips held at one extremity by a removable plate and at the other end these strips are permanently attached to the bottom of the container.

2 A bleach dispenser with a measuring flask attached to a floater as claimed in claim 1 for which at least three guiding strips are provided, and are attached to the base of the container around the funnel and held in fixed position at their other extremity by a removable plate which acts as the supporting base for the floater when water level in the cistern is lowered.

3 A bleach dispenser as claimed in all the previous claims, wherein the adjustable hooks are provided for the adjustment of the depth of the dispenser within the toilet flush cistern.

4 A bleach dispenser substantially as described herein with reference to Figures 1-3 of the accompanying drawing.

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Application No: GB 9928685.8 **Examiner:** Emma Tonner
Claims searched: 1-5 **Date of search:** 15 February 2000

Patents Act 1977
Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

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Int Cl (Ed.7): E03D 1/35, 9/02, 9/03; F16K 31/18; G01F 11/10, 11/28, 11/30, 11/32

Other: Online: EPODOC, PAJ, WPI

Documents considered to be relevant:

Category	Identity of document and relevant passage		Relevant to claims
A	GB 2 086 844 A	(HEWSON)	1
Y	GB 2 063 217 A	(WESSEX WATER)	1
Y	GB 163 389	(LEWIN & BARTLETT) - see figure 6 and page 4, lines 93-113	1
X, Y	US 4 915 260	(JONES)	1
X, Y	US 3 698 021	(DRACKETT)	1

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.